SEQUENCE LISTING

<110> Ades, Edwin W.
Sampson, Jacquelyn S.
Tharpe, Jean A.
Johnson, Scott E.
Jue, Danny L.
Carlone, George M.
Zeiler, Joan L.
Westerlink, Maria Anna J.

<120> Multiple Antigenic Peptides Immunogenic
Against Streptococcus Pneumonia

<130> 14114.0341U1

<140> 09/613,092
<141> 2000-07-10

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1330
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (189)...(1115)

<223> Description of Artificial Sequence; note =
synthetic construct

<400> 1
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tatcgtgctt acagctgcta gtttctttct cattagcttc tttatcgctc ccaaacaacg    120
atatttgaaa ctgaaaaata aacatttgtt aaaataaggg gcaaagccct aataaattgg    180
aggatcta atg aaa aaa tta ggt aca tta ctc gtt ctc ttt ctt tct gca     230
         Met Lys Lys Leu Gly Thr Leu Leu Val Leu Phe Leu Ser Ala
          1               5                  10

atc att ctt gta gca tgt gct agc gga aaa aaa gat aca act tct ggt      278
Ile Ile Leu Val Ala Cys Ala Ser Gly Lys Lys Asp Thr Thr Ser Gly
 15                  20                  25                  30

caa aaa cta aaa gtt gtt gct aca aac tca atc atc gct gat att act      326
Gln Lys Leu Lys Val Val Ala Thr Asn Ser Ile Ile Ala Asp Ile Thr
                 35                  40                  45

aaa aat att gct ggt gac aaa att gac ctt cat agt atc gtt ccg att      374
Lys Asn Ile Ala Gly Asp Lys Ile Asp Leu His Ser Ile Val Pro Ile
            50                  55                  60

ggg caa gac cca cac gaa tac gaa cca ctt cct gaa gac gtt aag aaa      422
Gly Gln Asp Pro His Glu Tyr Glu Pro Leu Pro Glu Asp Val Lys Lys
         65                  70                  75
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act tct gag gct gat ttg att ttc tat aac ggt atc aac ctt gaa aca      470
Thr Ser Glu Ala Asp Leu Ile Phe Tyr Asn Gly Ile Asn Leu Glu Thr
     80                  85                  90

ggt ggc aat gct tgg ttt aca aaa ttg gta gaa aat gcc aag aaa act      518
Gly Gly Asn Ala Trp Phe Thr Lys Leu Val Glu Asn Ala Lys Lys Thr
 95                 100                 105                 110

gaa aac aaa gac tac ttc gca gtc agc gac ggc gtt gat gtt atc tac      566
Glu Asn Lys Asp Tyr Phe Ala Val Ser Asp Gly Val Asp Val Ile Tyr
                115                 120                 125

ctt gaa ggt caa aat gaa aaa gga aaa gaa gac cca cac gct tgg ctt      614
Leu Glu Gly Gln Asn Glu Lys Gly Lys Glu Asp Pro His Ala Trp Leu
            130                 135                 140

aac ctt gaa aac ggt att att ttt gct aaa aat atc gcc aaa caa ttg      662
Asn Leu Glu Asn Gly Ile Ile Phe Ala Lys Asn Ile Ala Lys Gln Leu
        145                 150                 155

agc gcc aaa gac cct aac aat aaa gaa ttc tat gaa aaa aat ctc aaa      710
Ser Ala Lys Asp Pro Asn Asn Lys Glu Phe Tyr Glu Lys Asn Leu Lys
    160                 165                 170

gaa tat act gat aag tta gac aaa ctt gat aaa gaa agt aag gat aaa      758
Glu Tyr Thr Asp Lys Leu Asp Lys Leu Asp Lys Glu Ser Lys Asp Lys
175                 180                 185                 190

ttt aat aag atc cct gct gaa aag aaa ctc att gta acc agc gaa gga      806
Phe Asn Lys Ile Pro Ala Glu Lys Lys Leu Ile Val Thr Ser Glu Gly
                195                 200                 205

gca ttc aaa tac ttc tct aaa gcc tat ggt gtc cca agt gcc tac atc      854
Ala Phe Lys Tyr Phe Ser Lys Ala Tyr Gly Val Pro Ser Ala Tyr Ile
            210                 215                 220

tgg gaa atc aat act gaa gaa gaa gga act cct gaa caa atc aag acc      902
Trp Glu Ile Asn Thr Glu Glu Glu Gly Thr Pro Glu Gln Ile Lys Thr
        225                 230                 235

ttg gtt gaa aaa ctt cgc caa aca aaa gtt cca tca ctc ttt gta gaa      950
Leu Val Glu Lys Leu Arg Gln Thr Lys Val Pro Ser Leu Phe Val Glu
    240                 245                 250

tca agt gtg gat gac cgt cca atg aaa act gtt tct caa gac aca aac      998
Ser Ser Val Asp Asp Arg Pro Met Lys Thr Val Ser Gln Asp Thr Asn
255                 260                 265                 270

atc cca atc tac gca caa atc ttt act gac tct atc gca gaa caa ggt     1046
Ile Pro Ile Tyr Ala Gln Ile Phe Thr Asp Ser Ile Ala Glu Gln Gly
                275                 280                 285

aaa gaa ggc gac agc tac tac agc atg atg aaa tac aac ctt gac aag     1094
Lys Glu Gly Asp Ser Tyr Tyr Ser Met Met Lys Tyr Asn Leu Asp Lys
            290                 295                 300

att gct gaa gga ttg gca aaa taagcctctg aaaaacgtca ttctcatgtg      1145
Ile Ala Glu Gly Leu Ala Lys
        305
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agctggcgtt ttttctatgc ccacatttcc ggtcaaatca ttggaaaatt ctgactgttt 1205
cagatacaat ggaagaaaaa agattggagt atcctatggt aacttttctc ggaaatcctg 1265
tgagctttac aggtaaacaa ctacaagtcg gcgacaaggc gcttgatttt tctcttacta 1325
caaca 1330

<210> 2
<211> 309

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 2

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Leu	Val	Ala	Cys	Ala	Ser	Gly	Lys	Lys	Asp	Thr	Thr	Ser	Gly	Gln	Lys
		20					25					30			
Leu	Lys	Val	Val	Ala	Thr	Asn	Ser	Ile	Ile	Ala	Asp	Ile	Thr	Lys	Asn
	35					40					45				
Ile	Ala	Gly	Asp	Lys	Ile	Asp	Leu	His	Ser	Ile	Val	Pro	Ile	Gly	Gln
50					55					60					
Asp	Pro	His	Glu	Tyr	Glu	Pro	Leu	Pro	Glu	Asp	Val	Lys	Lys	Thr	Ser
65				70					75					80	
Glu	Ala	Asp	Leu	Ile	Phe	Tyr	Asn	Gly	Ile	Asn	Leu	Glu	Thr	Gly	Gly
			85					90					95		
Asn	Ala	Trp	Phe	Thr	Lys	Leu	Val	Glu	Asn	Ala	Lys	Lys	Thr	Glu	Asn
		100					105					110			
Lys	Asp	Tyr	Phe	Ala	Val	Ser	Asp	Gly	Val	Asp	Val	Ile	Tyr	Leu	Glu
	115					120					125				
Gly	Gln	Asn	Glu	Lys	Gly	Lys	Glu	Asp	Pro	His	Ala	Trp	Leu	Asn	Leu
130					135					140					
Glu	Asn	Gly	Ile	Ile	Phe	Ala	Lys	Asn	Ile	Ala	Lys	Gln	Leu	Ser	Ala
145				150					155					160	
Lys	Asp	Pro	Asn	Asn	Lys	Glu	Phe	Tyr	Glu	Lys	Asn	Leu	Lys	Glu	Tyr
			165					170					175		
Thr	Asp	Lys	Leu	Asp	Lys	Leu	Asp	Lys	Glu	Ser	Lys	Asp	Lys	Phe	Asn
		180					185					190			
Lys	Ile	Pro	Ala	Glu	Lys	Lys	Leu	Ile	Val	Thr	Ser	Glu	Gly	Ala	Phe
	195					200					205				
Lys	Tyr	Phe	Ser	Lys	Ala	Tyr	Gly	Val	Pro	Ser	Ala	Tyr	Ile	Trp	Glu
210					215					220					
Ile	Asn	Thr	Glu	Glu	Glu	Gly	Thr	Pro	Glu	Gln	Ile	Lys	Thr	Leu	Val
225				230					235					240	
Glu	Lys	Leu	Arg	Gln	Thr	Lys	Val	Pro	Ser	Leu	Phe	Val	Glu	Ser	Ser
			245					250					255		
Val	Asp	Asp	Arg	Pro	Met	Lys	Thr	Val	Ser	Gln	Asp	Thr	Asn	Ile	Pro
		260					265					270			
Ile	Tyr	Ala	Gln	Ile	Phe	Thr	Asp	Ser	Ile	Ala	Glu	Gln	Gly	Lys	Glu
	275					280					285				
Gly	Asp	Ser	Tyr	Tyr	Ser	Met	Met	Lys	Tyr	Asn	Leu	Asp	Lys	Ile	Ala
290					295					300					
Glu	Gly	Leu	Ala	Lys											
305															

<210> 3
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 3
aggatctaat gaaaaaatta g 21

<210> 4
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 4
tcagaggctt attttgccaa t 21

<210> 5
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 5
Thr Val Ser Arg Val Pro Trp Thr Ala Trp Ala Phe His Gly Tyr
1 5 10 15

<210> 6
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 6
Arg Ser Tyr Gln His Asp Leu Arg Ala Tyr Gly Phe Trp Arg Leu
1 5 10 15

<210> 7
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 7
Leu Val Arg Arg Phe Val His Arg Arg Pro His Val Glu Ser Gln
1 5 10 15

<210> 8
<211> 15

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 8
Leu Val Arg Arg Phe Val His His Arg Pro His Val Glu Ser Gln
1 5 10 15

<210> 9
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 9
Leu Val Arg Arg Phe Val His Arg Pro His Val Glu Ser Gln Lys
1 5 10 15

<210> 10
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 10
Ser Tyr Gln His Asp Leu Arg Ala Tyr Gly Phe Trp Arg Leu Lys
1 5 10 15

<210> 11
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 11
Cys Tyr Gly Gly
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<210> 12
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<221> VARIANT
<222> 2,3
<223> Xaa = any animo acid

<400> 12
Leu Xaa Xaa Cys
1